SERIAL No. 3196

ONKYO® SERVICE MANUAL

STEREO CASSETTE TAPE DECK MODEL TA-2047

Black and silver models

UDN, UDC, UD	120V AC, 60Hz
UG	220V AC, 50Hz
UW	120 or 220V AC, 50/60Hz
UQA, UQB	240V AC, 50Hz

SAFTY-RELATED COMPONETN WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO® AUDIO COMPONENTS

SPECIFICATIONS

Track Format:	4 tracks, 2 channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.)
Wow & Flutter:	0.045% (WRMS)
Frequency Response:	20-16,000 Hz (30-15,000 Hz ±3dB) (normal position tape) 20-17,000 Hz (30-16,000 Hz ±3dB) (high position tape) 20-18,000 Hz (30-17,000 Hz ±3dB)
Signal-to-Noise Ratio:	60dB (metal position tape, Dolby NR out) A noise reduction of 10dB above 5KHz and 3dB at 1kHz is possible with Dolby B NR. A noise reduction of 30dB at 5kHz is possible with Dolby C NR.
Input Jacks:	Mic jacks: 2 Input sensitivity: 0.3mV/600 ohm Input impedance: 2.7 kohms Line IN: 2 Input sensitivity: 60mV Input impedance: 50 kohms

Outputs;	Line OUT: 2 Std output level: 500mV (0dB) Optimum load impedance; over 50 kohms Headphone Jack: 1 Optimum load impedance:8-200 ohm
Motors;	DC servo motor: 1 DC motor: 2
Heads:	Rec/pb head: Special Hard Permalloy Erase head: Ferrite
Power Supply:	AC120V/60Hz
Power Consumption:	33 watts
Dimensions:	435(W) x 112(H) x 371(D)mm (17-1/8" x 4-3/8" x 14-5/8")
Weight:	6.0 kg. (13.2 lbs.)

Specifications and external appearnce are subject to change without notice because of product improvements.

SERVICE PROCEDURES

1. Instulation resistance meaurement

Connect the insulating-resistance tester between the plug of power supply cord and chassis.
Specifications; 500V more than 10 MΩ

2. Replacing the lamps

This unit used the lamps listed below.

Circuti No.	Part No.	Description
PL101	210090	150mA, 14V. Lamp
PL701	210183	0.06A, 14V. Lamp

CAUTION: Before replacing the lamps, be sure to unplug the power supply cable.

FEATURES

ACCUBIAS For the Best Performance With Any Tape

The ACCUBIAS system fine tunes the recording bias to obtain optimum performance with any kind of tape (not necessary with metal tapes). By setting precisely the correct bias level, ACCUBIAS guarantees the flattest frequency response and highest signal-to-noise ratio possible with each tape.

Dual Sensor Real Time Tape Counter

The tape counter circuit measures the speed of both tape reels and compares them by microcomputer to provide precise readings of remaining time. This dual sensor technique eliminates small errors in time calculations caused by slight variations in tape thickness between different manufacturers to give the most accurate time indications possible.

2-Motor Tape Transport with Separate Head Assembly Motor

The tape transport system, along with the heads, is the most important factor affecting the basic performance of a cassette deck. To assure extremely stable and accurate transport, this unit uses a DC servo-controlled capstan motor. This motor is unaffected by fluctuations in the power supply voltage and frequency and instantaneous changes in load. A highly reliable simple drive transmission system and precision vertical cassette holder further enhance overall accuracy and stability. As a result, wow and flutter is under 0.045% In addition, separate DC motors drive the reel tables and head base and the head assembly is constructed to move silently with no annoying clicks.

Dolby B and C Noise Reduction

Along with standard Dolby B NR, this unit also has the even more effective Dolby C NR system. Dolby C NR reduces tape background noi8se by 20dB at 5kHz, about 3 times more than Dolby B NR. In addition to its wide band noise recuction, Dolby C NR uses a sliding band technique that varies the band width of noise reduction according to the input level, thereby avoiding noise "pumping." Dolby C NR also has an anti-saturation effect to reduce the chance of tape saturation in the high range. All these features combine to eliminate the adverse effects on tape sound that other noise reduction systems can cause.

Remote Control Unit Connector

With an optional remote control unit (such as the RC-5T), this unit can be controlled evern while you are relaxing in your favorite chair. All transport modes are included: record, play, fast forward, rewind, stop and pause.

Sensitive 2-Color 10-Segment LED Peak Level Meter

The left and right peak level meters react instantaneously to signals and the two-color layout assures that you won't miss any potentially harmful input signals when setting the recording level.

Auto Space Rec Mute Button

This button lets you insert unrecorded sections five seconds long with just one quick tap.

Auto Music Control System (A.M.C.S.)

The AMCS automatically locates the beginning of every song on a cassette in either the forward or the reverse direction. When AMCS ⋙ is pressed during the play mode, tape is rapidly wound to the beginning of the next song and the first 10 seconds (approximately) is played. Then the tape is rapidly wound forward to the beginning of the next song and about 10 seconds is played. This process continues until the PLAY button is pressed to cancel AMCS operation and return to normal playback. When AMCS ⋙ is pressed during the play mode, this process is performed in the reverse direction.

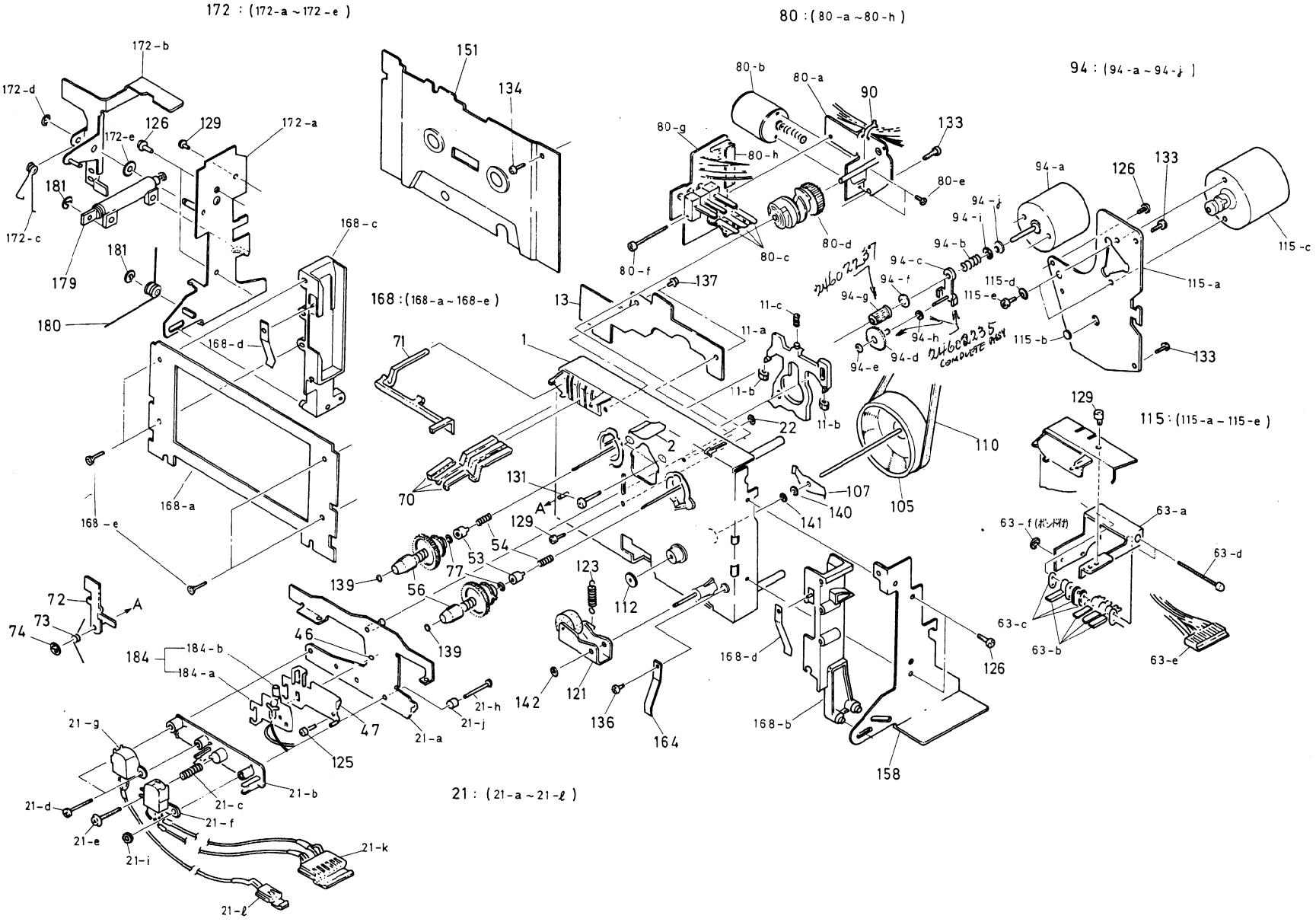
Repeat Playback Modes

With this deck, you have a choice of two ways to play a tape repeatedly: (1) Single repeat for one song; (2) Full repeat for an entire cassette side.

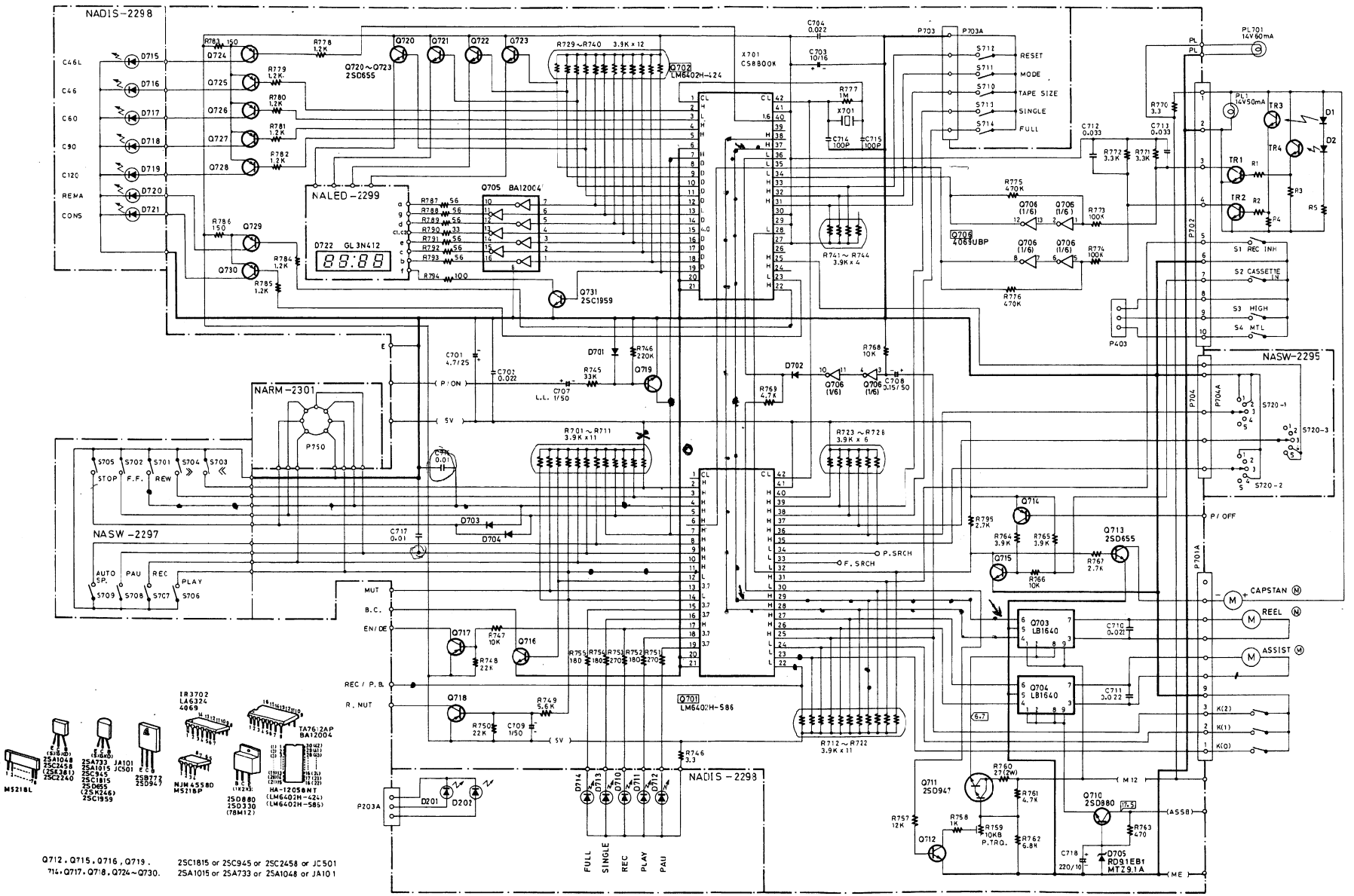
Fully Automatic Tape Selection

This deck senses the type of cassette inserted and automatically sets the correct amount of bias and equalization.

TAPE MECHANISM-EXPLODED VIEW

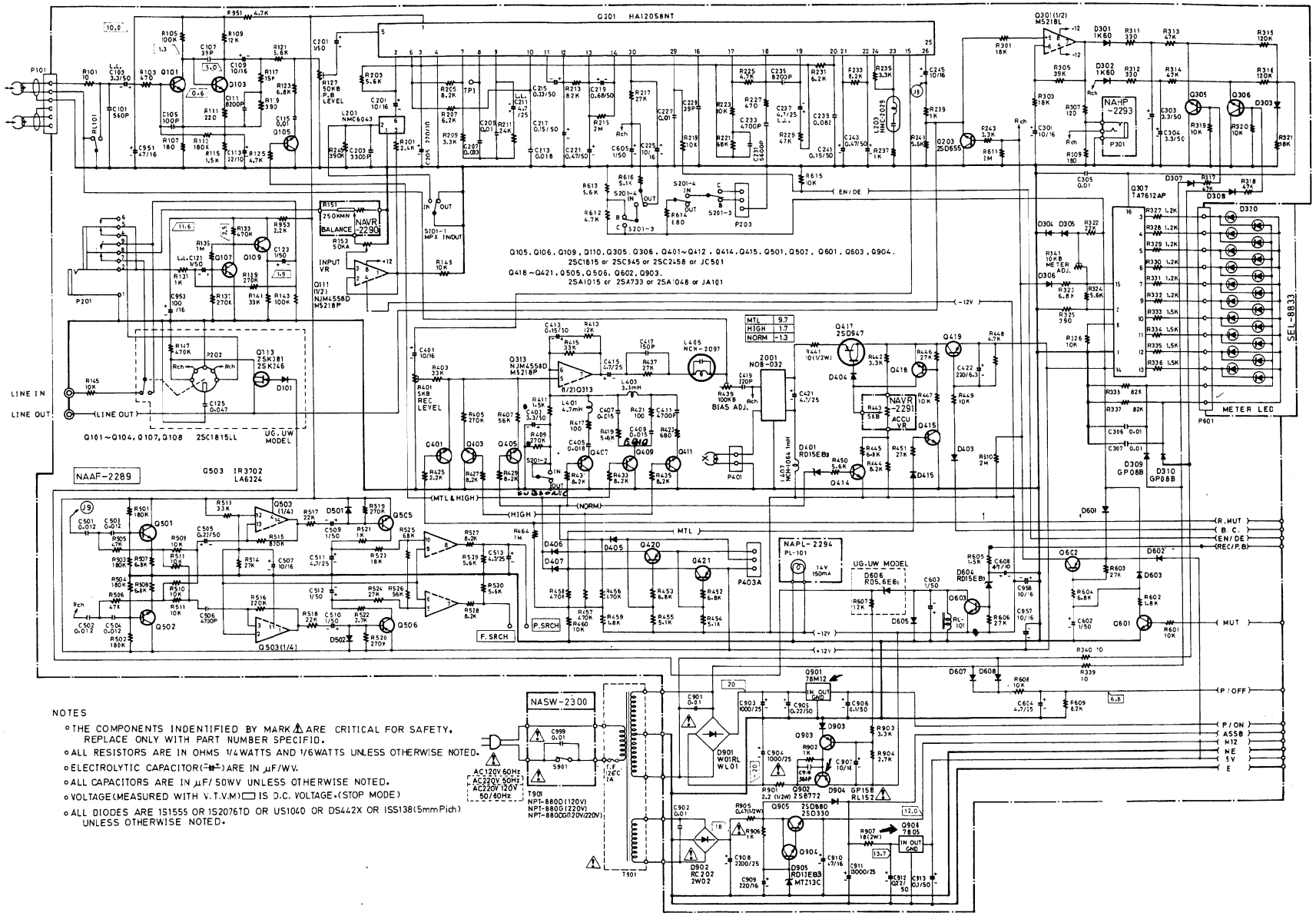


SCHEMATIC DIAGRAM-CONTROL SECTION



ONKYO CORPORATION

SCHEMATIC DIAGRAM-AMPLIFIER SECTION



NOTES

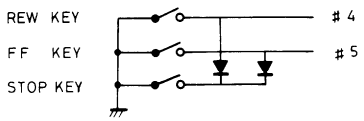
- THE COMPONENTS INDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFID.
- ALL RESISTORS ARE IN OHMS 1/4WATTS AND 1/6WATTS UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITOR(⊕⊖) ARE IN μF/WV.
- ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
- VOLTAGE(MEASURED WITH V.T.V.M.) □ IS D.C. VOLTAGE.(STOP MODE)
- ALL DIODES ARE 1S1555 OR 1S2076TD OR US1040 OR DS442X OR ISS138(5mm Pich) UNLESS OTHERWISE NOTED.

MICRO COMPUTER LM6402H-586 PIN ALLOCATION

1	CLK	CLK	42
2	AMCS REV	VDD (5V)	41
3	AMCS FWD	REC STAND BY (N.C.)	40
4	REW	REPEAT — SINGLE	39
5	FF	REPEAT — FULL	38
6	INT.	OOO IN	37
7	RESET	MODE 3	36
8	AUTO SPACE	MODE 4	35
9	PAUSE	SEARCH — LOW SPEED	34
10	REC	SIGNAL — HIGHSPEED	33
11	PLAY	CASSETTE IN/OUT	32
12	BIAS CONTROL	REC INH	31
13	MUTE (LINE)	O-PLAY	30
14	REC MUTE	REEL — REV	29
15	LED (FULL)	REEL — FWD	28
16	LED (SINGLE)	ASSIST — DOWN	27
17	LED (REC)	ASSIST — UP	26
18	LED (PLAY)		25
19	LED (PAUSE)	MECHANISM POSITION	24
20	TEST		23
21	Vss	REC / P.B.	22

MODE 3	0	0	1	1
MODE 4	0	1	0	1
OPARATION	REC	P.B	P.B	STOP
	TIMER		MEMORY	

1. The STOP key is shown in the following figure with no key entry from the microcomputer.



2. #32 provides the ON/OFF control for the capstan motor and the I/O port for cassette IN/OUT. It is also used for P/OFF (when the power is turned off during play, the capstan motor is stopped to lower the head).

Operation

Power ON → Insert CASSETTE-HALF → CASSETTE IN SW ON → Q715 OFF → #32 HIGH

The above steps are taken at the I/O port.

Then, proceed with the following steps:

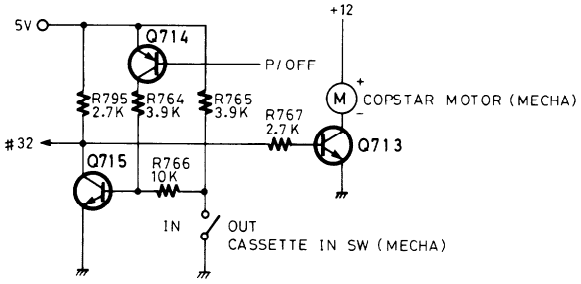
#32 → Q713 ON → CAPSTAN MOTOR ON

When the power is turned off, proceed with the following:

LOW → Q714 ON → Q715 ON → #32 LOW → (assume the half detaches from the holder)

Q713 OFF → CAPSTAN OFF

In line with the step above, DOWN signal is sent to the ASSIST motor.



3. Mechanical position code

Q-701 #23	Q-701 #24	Q-701 #25	Mode
H	H	L	–
L	H	L	PLAY
L	L	L	–
H	L	L	PAUSE
H	L	H	–
L	L	H	STOP
L	H	H	FF, REW
H	H	H	–

4. Assist up, down, and Reel FWD/RVS signals

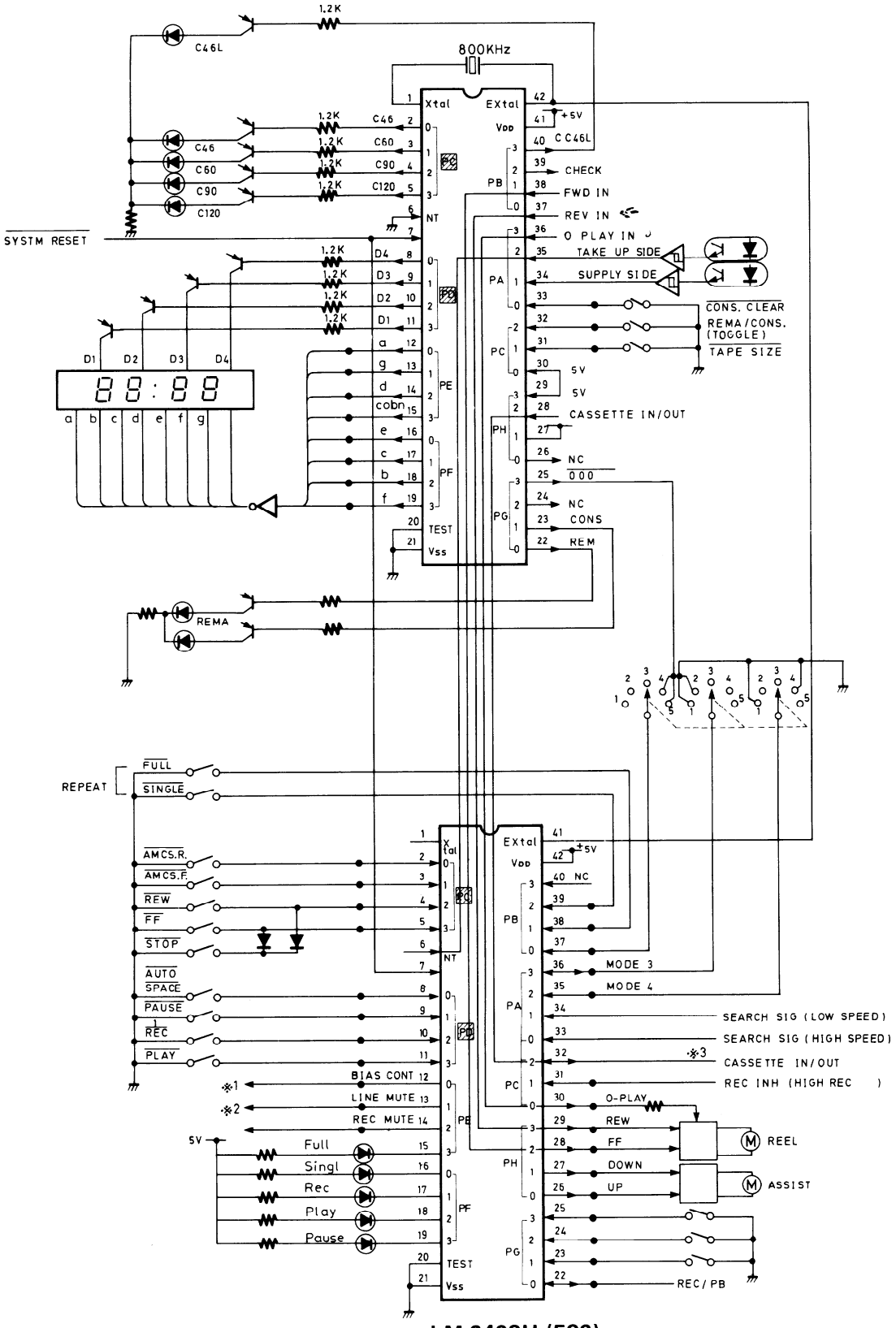
	Q701	POWER ON→PLAY→STOP→PLAY (FF)						
Assist motor	#26(UP)	H	H	H	L	H	H	H
	#27(DOWN)	H	L	H	H	H	L	H
Reel motor	#28(FWD)	H		H		L		H
	#29(FEV)	H		L		L		L

As illustated above, the steady-state (during STOP, FF, RW, and PLAY) control output of the ASSIST motor is at HIGH level, holding the motor under brake applied by the motor control IC (Q704 LB1640N).

The control output of the REEL motor is momentarily held under braking condition only when the power is turned on, then is restored to normal to output the control signals as usual.

MICRO COMPUTER

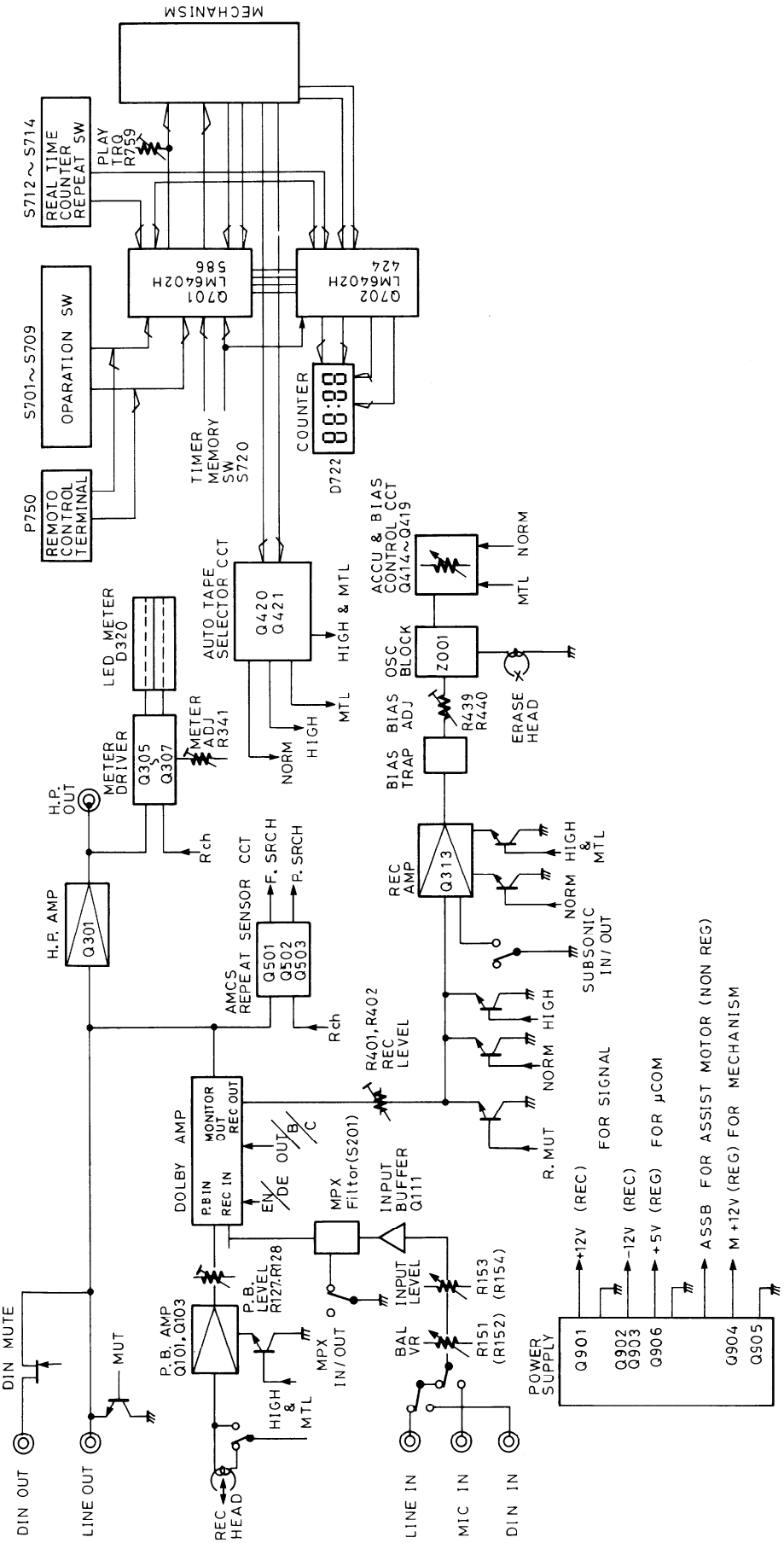
LM-6402H (424)



LM-6402H (586)

	1	2	4	5	
MODE 3	0	0	1	1	PtA(3)
MODE 4	0	1	0	1	PtA(2)
	REC	PB	PB	STOP	
	TIMER		MEMORY		

BLOCK DIAGRAM



CHASSIS-EXPLODED VIEW PARTS LIST

FEF NO.	PART NO.	DESCRIPTION
A1	27110241A	Front bracket
A2	27140781	Bracket, headphone
A3	28321911	Holder ass'y, knob
A6	27190350	Holder stopper
A7	27190295	Holder, lamp
A8	28130223A	Dial plate
A9	28133128B	Back plate
A10	28199146	Film
A13	27273030C	Joint L
A14	27273036	Joint
A15	28170014	Bushing
A16	880009	Rivert
A17	27115139C	Side bracket
A18	27130331F	Bracket, power transformer
A19	27190351	Holder, power
A20	27190356	Holder, lid
A22	27120672	Back panel (D)
	27120673	Back panel (G)
	27120674	Back panel (W)
A23	⚠ 27300750	Strainrelief
A24	870065	Special washer
A25	86414010	FWN4x10FN, Flange unt
A26	27190009	Holder
A27	82142604	2.6P+4F (BC), Pan head screw
A28	82143006	3P+6F(BC), Pan head screw
A31	830440109	4TTC+10C(BC), Tapping screw
A32	834426068	2.6TTS+6B(BC), Tapping screw
A33	834430068	3TTS+6B(BC), Tapping screw
A34	831430088	3TTW+8B(BC), Tapping screw
A35	834430108	3TTS+10B(BC), Tapping screw
A36	833430080	3TTP+8P (BC), Tapping screw
A51	880011	Rivert (G/W)
A501	11408121	Front panel ass'y (S)
A501a	28125133	End cap L
A501b	28125134	End cap R
A501c	27267238A	Guide, eject
A501d	27267206B	Guide, power
A501e	28198477	Facet, power
A501f	28321921A	Knob, decoration
A501g	27267394A	Guide, slide
A501h	27267393	Guide, push
A501	11428121	Front panel ass'y (B)
A501a	28125135A	End cap L
A501b	28125136A	End cap R
A501c	27267239A	Guide, eject
A501d	27267235B	Guide, power
A501e	28198577	Facet, power
A501f	28321921A	Knob, decoration
A501g	27267395A	Guide, slide

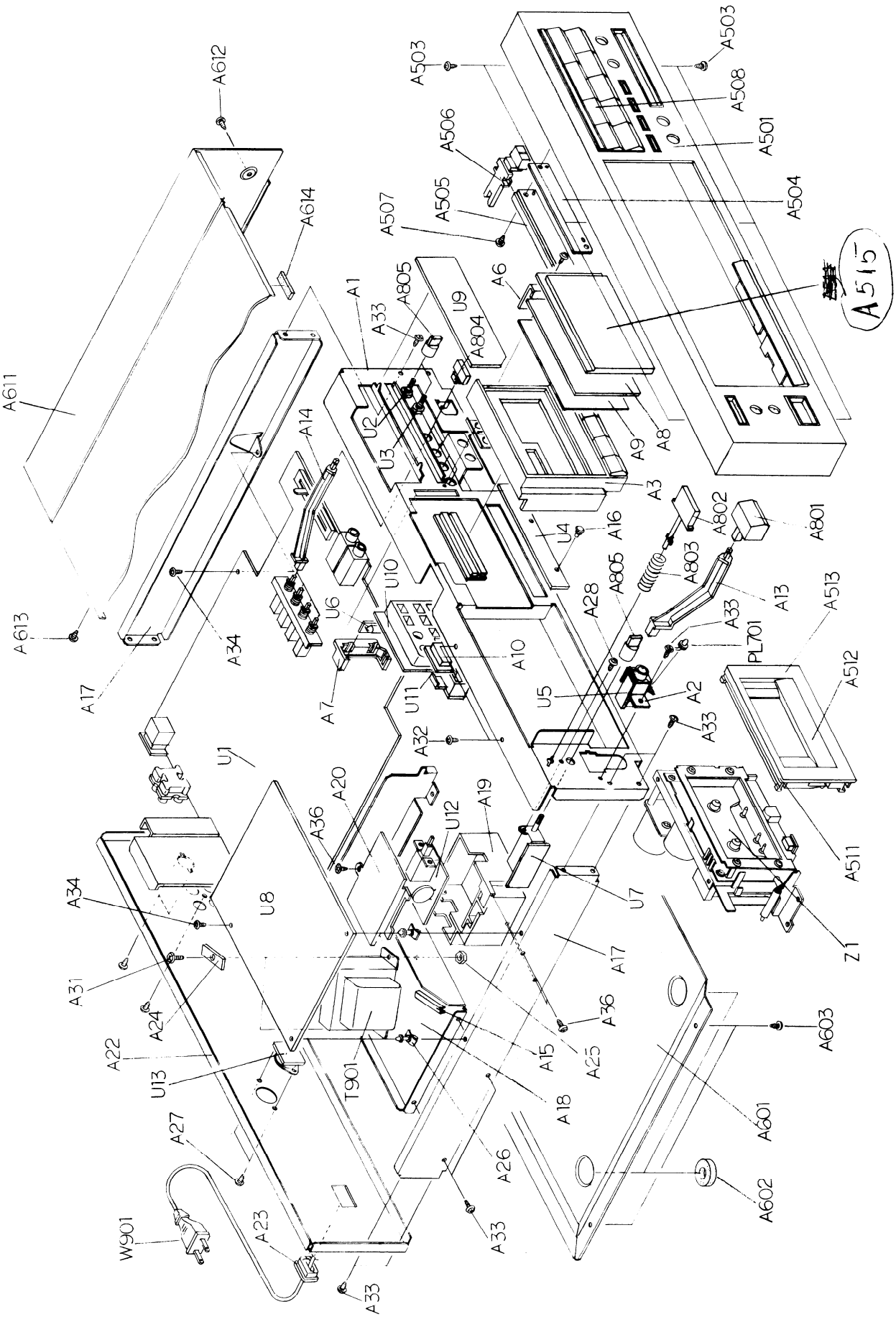
REF NO.	PART NO.	DESCRIPTION
A501h	27267396	Guide, push
A503	834430068	3TTS+6B(BC), Tapping screw
A504	27262331	Plate, dial (S)
	27262334	Plate, dial (B)
A505	28400223A	Rail
A506	28321920	Slide knob ass'y (S)
	28321930	Slide knob ass'y (B)
A507	833430080	3TTP+8P(BC), Tapping screw
A508	28321924	Guide ass'y, knob (S)
	28321932	Guide ass'y knob (B)
A511	27300697	Cassette lid
A512	27262332	Plate, lid
A513	28191289	Window TRANSPARENT PLASTIC
A515	28191290	Clear plate
A601	27170150A	Bottom board
A602	27174011C	Leg
A603	834430068	3TTB+6B(BC), Tapping screw
A611	28184235	Top cover (S)
	28184236	Top cover (B)
A612	838440089	4TTB+8C (BC), Tapping screw
A613	838430088	3TTB+8B (BC), Tapping screw
A614	28140408	10x36x3, Cushion
A801	28321904A	Knob ass'y, power (S)
	28321904B	Knob ass'y, power (B)
A802	28321027B	Knob ass'y, eject (S)
	28321988	Knob ass'y eject (B)
A803	27180179	Spring
A804	28321922	Knob, push (S)
	28321935	Knob, push (B)
A805	28321923	Knob (S)
	28321936	Knob (B)
D320	225129	SEL8833, L.E.D
P601A	2000446	NSAS-24P-405, Socket
PL701	210183	PL14V 0,06AW-2.0, lamp
S902	⚠ 25064123	NSS-1258P, Voltage selector switch (W)
T901	⚠ 230888	NPT-880D, Power transformer (D)
	⚠ 230889	NPT-880G, Power transformer (G)
	⚠ 230890	NPT-880DG, Power trnsformer(W)
U1	11408589	NAAF-2289, Main circuit pc board ass'y (D)
	11414589A	NAAF-2289A, Main circuit pc board ass'y (G/W)
U2	11408590	NAVR-2290, Balance volume pc board ass'y
U3	11408591	NAVR-2291, Accu. bias volume pc board ass'y
U4	11408592	NASW-2292, Counter/Repeat switch pc board ass'y

REF NO.	PART NO.	DESCRIPTION
U5	11408593	NAHP-2293, Headphone terminal pc board ass'y
U6	11408594	NAPL-2294, Edge light pc board ass'y
U7	11408595	NASW-2295, Timer/Memory switch pc board ass'y
U8	11408596	NAC0C-2296, Control circuit pc board ass'y
U9	11408597	NASW-2297, Operation switch pc board ass'y
U10	11408598	NADIS-2298, Display pc board ass'y
U11	11408599	NALED-2299, L.E.D pc board ass'y
U12	⚠ 11408500	NASW-2300, Power switch pc board ass'y
U13	11408501	NARM-2301, Removte control terminal pc board ass'y
W901	⚠ 253128	AS-CEE, Power supply cord (G/W)
	⚠ 253112	AS-UC-4, Power supply cord (D)
Z1	244074	NOM-66, Tape mechanism ass'y

NOTE: (D) : Only 120V model
(G) : Only 220V model
(W): Only Universal model
(S) : Only Silver model
(B) : Only Black model

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

CHASSIS-EXPLODED VIEW



TAPE MECHANISM-PARTS LIST

PLACE	REF. NO	PART NO.	DESCRIPTION
E-3	1	24611138	Chassis
F-4	2	24605468	Cassette holding spring
	11	24611043	Brake ass'y
F-3	11a	24611053	Brake plate
G-4, F-3	11b	24610999	Brake rubber
F-3	11c	24605472	Spring
E-3	13	24606204	Sensor pc board ass'y
	21	24611139	Head base ass'y
D-6	21a	24610966	Head base
C-6	21b	24610967	Head stand
C-6	21c	24605185	Spring
A-6	21d	82512012	M2x12, Binding screw
B-7	21e	801198	M2x14, Pan head screw
B-7	21f	24600051	Erase head
B-6	21g	24600041	Erase head
D-6	21h	82112016	M2x16, Pan head screw
B-7	21i	863130	M2, Nut
D-6	21j	24604060	Spacer
D-6	21k		P6, Connector
C-7	21l		P2, Connector
F-4	22	893030	E3, Ring E
C-5	46	24610943	ϕ3, Steel ball
D-6	47	24610963	Cassette holding plate
D-5	53	24610964	Spring holder
D-5	54	24605466	Spring
D-5	56	24602267	Reel stand ass'y
	63	24606223	Sensor switch ass'y
I-4	63a	24611056	Switch holding plate
H-5	63b	24606205	Leaf switch
H-5	63c	24611057	Washer
I-5	63d	82112030	M2x30, Pan head screw
I-5	63e		P10, Connector
H-4	63f	24611058	2.9x5x0.5, Washer
D-4	70	24603281	Switch lever
D-3	71	24603282	Metal switch lever
A-5	72	24611049	Lock plate
A-5	73	246005503	Spring
A-5	74	891030	ES-3, Ring CS
D-5	77	24611140	2.1x4x0.1, Washer
F-1	80	24601182	PAD unit ass'y
G-1	80a	24610968	Plate, motor
F-1	80b	24601103	Motor
F-3	80c	24606182	Leafswitch
G-2	80d	24602133	Cam gear
G-2	80e	82112003	M2x3, Pan head screw
E-3	80f	833125209	M2.5x20, Pan head screw
F-2	80g	24606181	Pc board
F-2	80h	24606224	Post with base
G-1	90		Binder
H-1	94	24601183	Reel motor ass'y
H-2	94a	24601054	Reel motor
G-3	94b	24605467	Spring
G-3	94c	24602235	Wheel lever
G-3	94d	24602236	Wheel
G-3	94e	24610969	1.3x3.4x0.5, Washer
G-3	94f	24610970	Felt
G-3	94g	24602237	Motor wheel
G-3	94h	24611141	1.7x6x0.25, Washer
H-2	94i	24610374	2.1x7x0.5, Washer
H-2	94j	24610373	Spring holder
G-4	105	24602240	Flywheel
G-4	107	24605152	Thrust spring
H-4	110	24602269	Flat belt
E-5	112	24610673	2.5x 7x0.8, Washer
I-4	115	24611143	Flywheel ass'y
I-3	115a	24610971	Flywheel holder
H-3	115b	24610671	Thrust holder
J-2	115c	24601184	Capstan motor ass'y
H-3	115d	24611142	2.7x 5x0.5, Washer
H-3	115e	801341	M2.6x3.5, Pan head screw
E-6	121	24602316	Pinch arm ass'y
E-5	123	24605370	Spring
C-6	125	833125089	M2.5x8, Pan Head screw
I-2, H-5, B-2	126	833125059	M2.5x5, Pan head screw
E-4, B-2	129	801250	M2x4, Pan head screw
E-4	131	82512614	M2.6x14, Binding screw
I-2, H-2	133	833426105	10x2.6, Tapping screw
E-1	134	833126055	2.6x5, Tapping screw
E-6	136	837120058	M2x5, Truss screw
F-3	137	801292	M2x3.2, Truss screw
D-5, C-5	139	24610349	1.8x3.2x0.5, Washer
G-4	140	24610515	2.6x4.7x0.25, Washer
G-4	141	24610972	2.6x4.7x0.13, Washer
E-6	142	24610973	2.7x6x0.5, Washer
D-1	151	24610959	Cassette panel
G-6	158	24610939	Side bracket R
F-6	164	24605188	Cassette spring
D-3	168	24610940	Cassette holder ass'y
B-4	168a	24610949	Holding plate
F-6	168b	24610849	Holder R
C-2	168c	24610848	Holder L
F-5, C-3	168d	24605463	Cassette spring
B-4	168e	835426082	M2.6x8, Flat head screw
C-1	172	24611050	Side bracket L ass'y
C-2	172a	24611059	Side bracket
B-1	172b	24603283	Canceller lever
A-3	172c	24605407	Spring
A-2	172d	893030	E-3, Ring E
B-2	179	24611051	Dumper unit
A-3	179	24611051	Dumper unit
A-3	180	24605456	Spring
B-3, A-2	181	891024	Circlip
B-5	184	24606168	Holder ass'y, lamp
B-5	184a	24610498	Holder, lamp
B-5	184b	24606173	Lamp

ADJUSTMENT PROCEDURES

PRECAUTIONS

1. Before adjustment, clean the following parts with an alchol moinstend swab.
   - * record/playdack head
   - * erase head
   - * pinch roller
   - * capstan
2. Do not use magnetized screwdriver for adjustments.
3. Demagnetize record/playback head with a head demagnetizer.

TEST EQUIPMENT/TOOLS REQUIRED:

Audio oscillator
Digital frequency counter
Oscilloscope
Attenuator
AC voltmeter DC voltmeter
Non-magnetic screw driver

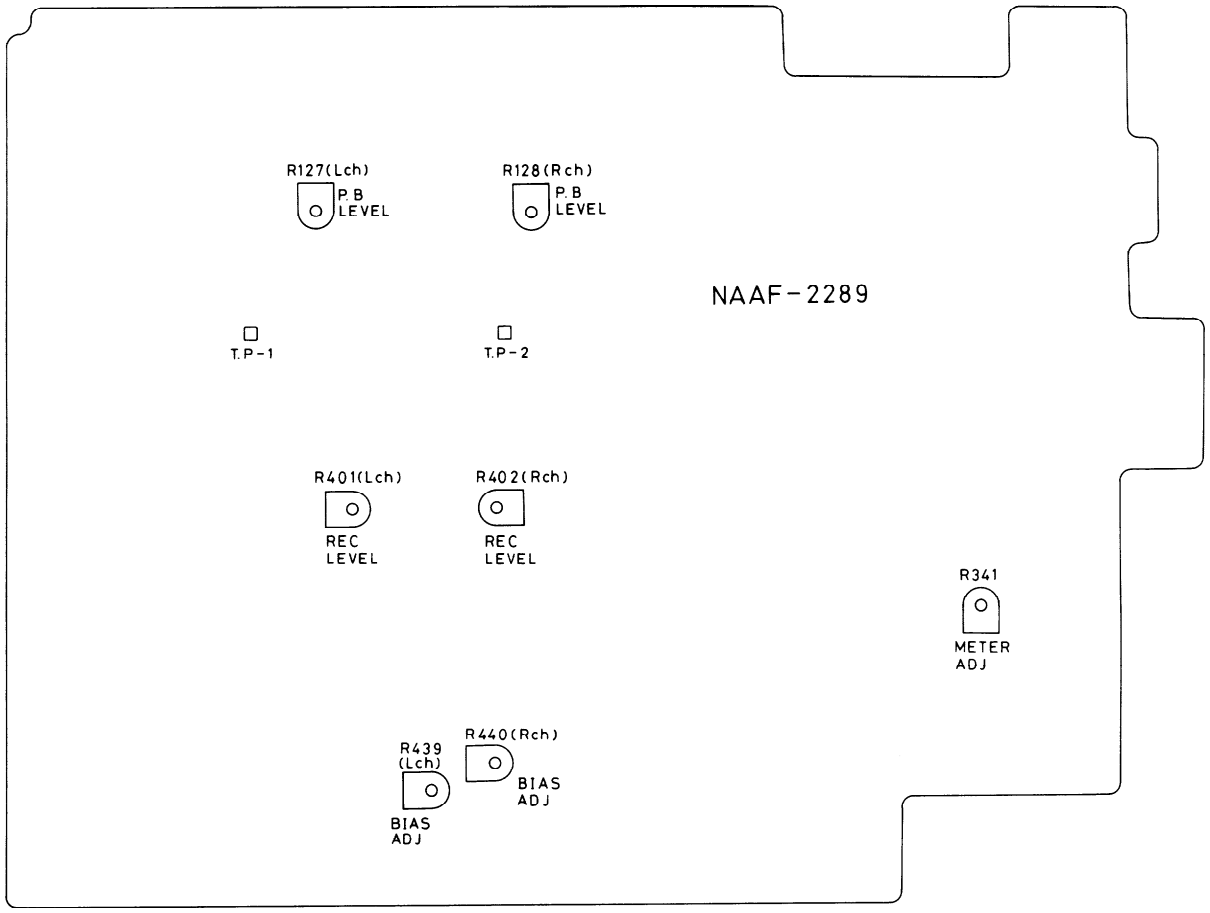
Blank tapes(completely erased)

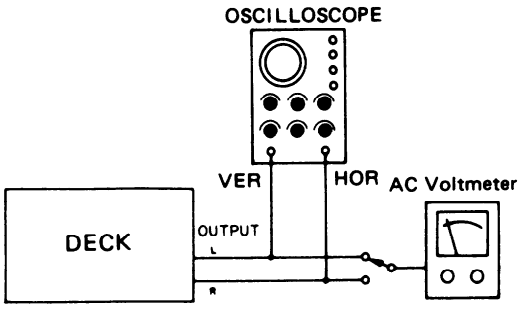
NORMAL ..... NEW UD90
HIGH ..... NEW XL-II 90
METAL ..... NEW MX60

Test tapes

VTT-658 : 10 kHz, −15dB
MTT-111 : 3 kHz, −10dB
MTT-150 : Dolby level calibration 400Hz tone 200nWb/m
MTT-215C : 315Hz, 10kHz
TW-2111 : Torque meter
MC-112C : Mirror tape

	Item	Connection of instrument	LINE input	Test tape	Mode	Output indicator	Ajustment point	Adjust	Remarks
1	Playback torque			TW-2111	PB	TW-2111	R759	35 to 55gcm	
2	Tape speed	Frequency counter to LINE output terminal		MTT-111	PB	Frequency counter	Semi-fixed on the moter	3,000 to 3,010Hz	
3	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal		VTT-658	PB	AC voltmeter	Head azimuth screws	Maximum and same phase at channels L and R.	See fig. 1 Set the semi-fixed resistors R127 and R128 to center position.
4	Playback level	AC voltmeter terminals TP-101 and TP-102		MTT-150	PB	AC voltmeter	R127(L) R128(R)	580mV	
5	Bias current	Fig. 2	1kHz, −20dB and 12kHz, −20dB	MAXELL UD-1, C90	REC/PB	AC voltmeter	R439(L) R440(R)	Same level at REC/PB	INPUT VOLUME ..... maximum
6	Record level	Fig. 2	1kHz		REC PAUSE	AC voltmeter	Atternuotor or AF OSC output	350mV	INPUT VOLUME ..... maximum
					REC/PB	AC voltmeter	R401(L) R402(R)	Same levle at REC/PB.	





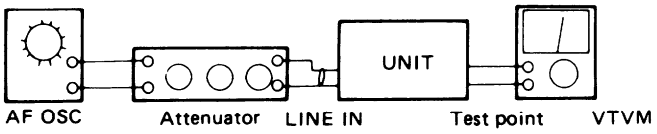
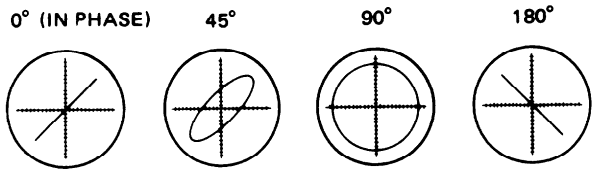


fig-2



Confirming phase relationship

fig-1

PRINTED CIRCUIT BOARD PARTS LIST

CONTROL CIRCUIT PC BOARD (NACOC-2296)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q701	222866	LM6402H-586
Q702	222776	LM6402H-424
Q703, 704	222862	LB1640N
Q705	222865	BA12004
Q706	222840692	4069BP
	Transistors	
Q710	2201074 or 2201385	2SD880 (Y) or 2SD330 (E)
Q711	2201540	2SD947
Q712, Q715 Q716, Q719	2211254, 2212114, 2210747 or 2212485	2SC1815 (Y), 2SC2458 (Y), 2SC945A (P) or JC501 (Q)
	Transistors	
Q713	2211704 or 2211706	2SD655 (E) or 2SD655 (F)
Q714, Q717 Q718	2211454, 2212124,	2SA1015 (Y), 2SA1015 (Y),
Q724-Q730	2210804 or 2212494	2SA733A (Q) or JA101 (P)
Q720-Q722	2211706	2SD755 (F)
Q723	2211706	2SD655 (F)
Q731	2211544	2SC1959 (Y)
	Diodes	
D701-704	223155	ISS138
D705	2239571 or 2243201	RD9. 1EB1 or MTZ9.1A
	Capacitors	
C701	352750479	4.7μF, 25V, Elect.
C703	352741009	10μF, 16V, Elect.
C707	392880107	1μF, 50V, LL
C708	352781599	0.15μF, 50V, Elect.
C709	352780109	1μF, 50V, Elect.
C718	352732219	220μF, 16V, Elect.
	Ceramic oscillator	
X701	3010092	CSB800K
	Resistors	
R701-R711	49163392411	3.9kΩx11, 1/10W, Network
R712-R722	49163392411	3.9kΩx11, 1/10W, Network
R723-R728	49121392406	3.9kΩx6, 1/8W, Network
R729-R740	49163392412	3.9kΩx12, 1/10W, Network
R741-R744	49121392404	3.9kΩx4, 1/0W, Network
R759	5215045 or 5215021	N08HR10KBC, Semi-fixed
R760	441722704	27Ω, 2W, Metal oxide film
	Plugs	
P403	25055133	NPLG-3P-117
P702	25055140	NPLG-10P-124
P703	25055136	NPLG-6P-120
P704	25055135	NPLG-5P-119
	Socket	
P701a	2000447	NSAS-20P-406
	Lamp	
PL701	210183	PL14V0.06AW-2.0

PRINTED CIRCUIT BOARD PARTS LIST

MAIN CIRCUIT PC BOARD (NAAF-2289/A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q111	222465 or	NJM4558D or
Q413	222808	M5218P
Q201, Q202	222729	HA12058NT
Q301	222652	M5218L
Q307	222507	TA7612AP
Q503	222681 or	IR2702 or
	222695	LA6324
Q901	222780122	78M12
Q906	222780050	7805
	Transistors	
Q101-Q104	2211896,	2SC1815L (B),
Q107, Q108	2212256 or	2SC2458 (LL) or
	2211406	2SC2240 (BL)
Q105, Q106	2211255,	2SC1815 (GR),
Q109, Q110	2212115,	2SC2458 (GR),
Q305, Q306	2210746 or	2SC945A ((P) or
Q401-Q402	2212485	JC501 (Q)
Q113, Q114	2212304,	2SK381 (D),
	2212305,	2SK381 (E),
	2211945 or	2SK246 (GR) or
	2211946	2SK246 (BL) (G/W)
Q203, Q204	2211705 or	2SD665 (E) or
	2211706	2SD755 (F)
Q414, Q415	2211254,	2SC1815 (Y),
Q601	2212114,	2SC2458 (Y),
Q904	2210746 or	2SC945A (P) or
	2212485	JC501 (Q)
Q417	2201540	2SD947
Q418-Q421	2211455,	2SA1015 (GR),
Q602, Q903	2212125,	2SA1048 (GR),
	2210803 or	2SA733A ((P) or
	2212494	JA101 (P)
Q501, Q502	2211255,	2SC1815 (GR),
Q603	2212115,	2SC2458 (GR),
	2210746 or	2SC945A (P) or
	2212485	JC501 (Q)
Q505, Q506	2211454,	2SA1051 (Y)
	2212124,	2SA1048 (Y),
	2210804 or	2SA733A (Q) or
	2212494	JA101 (P)
Q902	2201274 or	2SB772 (Q) or
	2201276	2SB772 (P)
Q905	2201074 or	2SD880 (Y) or
	2201385	2SD330 (E)
	Diodes	
D101, D102	223145,	1S2076TD,
	223150,	US1040,
	223105 or	1S1555 or
	223133	DS442X (G/W)
D301, D302	223132	1K60
D303-D308	223145,	1S2076TD,
D601-D603	223150,	US1040,
D605, D607	223105 or	1S1555 or
D608, D903	223133	DS442X
D309, D310	223848	GP08B
D401	2239673,	RD15EB3,
	2242922 or	EQA-02-14B or
	2243253	MTZ15C
D402-D407	223155	1SS138
D501, D502	223155	1SS138
D604	2239673,	RD15EB3,
	2242922 or	EQA02-14B or
	2243253	MTZ14C

CIRCUIT NO.	PART NO.	DESCRIPTION
D606	2239471,	RD5.6EB1,
	2242839 or	EQA02-05F or
	2243151	MTZ5.6A (G/W)
D901	223862 or	WL01 or
	223890	W01RL
D902	223868 or	2W02 or
	223889	RC202
	Diodes	
D904	223891 or	RL152 or
	223842	TP-15B
D905	2239653 or	RD13EB3 or
	2243243	MTZ13C
	Coils	
L201, L202	233306	NMC-6043
L203, L204	233245	NMC-2029
L401, L402	24606072 or	NCH-1010 or
	231040	NCH-2080
L403, L404	24606080 or	NCH-1022 or
	231038	NCH-2078
L405, L406	233314	NCH-2097
L407	231025	NCH-1064
	Osc. block	
Z001	24606214	NOB-032
	Capacitors	
C103, C104	392880337	3.3μF, 50V, LL
C109, C110	352741009	10μF, 16V, Elect.
C113, C114	352732209	22μF, 10V, Elect.
C121, C122	392880107	1μF, 50V, LL
C123, C124	352780109	1μF, 50V, Elect.
C201, C202	352780109	1μF, 50V, Elect.
C205, C206	352741009	10μF, 16V, Elect.
C207, C208	352732219	220μF, 10V, Elect.
C213, C214	392850477	4.7μF, 24V, LL
C217, C218	352783399	0.33μF, 25V, Elect.
C219, C220	352781599	0.15μF, 40V, Elect.
C221, C222	352784799	0.47μF, 50V, Elect.
C223, C224	352786899	0.68μF, 50V, Elect.
C225, C226	352741009	10μF, 16V, Elect.
C237, C238	392850477	4.7μF, 25V, LL
C241, C252	352781599	0.15μF, 50V, Elect.
C243, C244	352784799	0.47μF, 50V, Elect.
C245, C246	352741009	10μF, 16V, Elect.
C301, C302	352741009	10μF, 16V, Elect.
C303, C304	352780339	3.3μF, 50V, Elect.
C401, C402	352741009	10μF, 16V, Elect.
C403, C404	352780339	3.3μF, 50V, Elect.
C413, C414	352781599	0.15μF, 50V, Elect.
C415, C416	352750479	4.7μF, 25V, Elect.
C421	352750479	4.7μF, 24V, Elect.
C422	352722219	220μF, 6.3V, Elect.
C505	352782299	0.22μF, 50V. Elect.
C507	352741009	10μF, 16V, Elect.
C509, C510	452780109	1μF, 50V, Elect.
C511	352750479	4.7μF, 25V, Elect.
C512	352780109	1μF, 50V, Elect.
C513	352750479	4.7μF, 25V, Elect.
C602	352780109	1μF, 50V, Elect.
C603	352741019	100μF, 16V, Elect.
C604	352750479	4.7μF, 25V, Elect.
C605	352784799	0.47μF, 50V, Elect.
C608	352734709	47μF, 10V, Elect.
C903, C904	352741029	1,000μF, 24V, Elect.
C905	352782299	0.22μF, 50V, Elect.
C906	352781099	0.1μF, 50V, Elect.
C907	352741009	10μF, 16V, Elect.

PRINTED CIRCUIT BOARD PARTS LIST

CONTROL CIRCUIT PC BOARD (NACOC-2296)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q701	222866	LM6402H-586
Q702	222776	LM6402H-424
Q703, 704	222862	LB1640N
Q705	222865	BA12004
Q706	222840692	4069BP
	Transistors	
Q710	2201074 or	2SD880 (Y) or
	2201385	2SD330 (E)
Q711	2201540	2SD947
Q712, Q715	2211254,	2SC1815 (Y),
Q716, Q719	2212114,	2SC2458 (Y),
	2210747 or	2SC945A (P) or
	2212485	JC501 (Q)
	Transistors	
Q713	2211704 or	2SD655 (E) or
	2211706	2SD655 (F)
Q714, Q717	2211454,	2SA1015 (Y),
Q718	2212124,	2SA1015 (Y),
Q724-Q730	2210804 or	2SA733A (Q) or
	2212494	JA101 (P)
Q720-Q722	2211706	2SD755 (F)
Q723	2211706	2SD655 (F)
Q731	2211544	2SC1959 (Y)
	Diodes	
D701-704	223155	ISS138
D705	2239571 or	RD9. 1EB1 or
	2243201	MTZ9.1A
	Capacitors	
C701	352750479	4.7μF, 25V, Elect.
C703	352741009	10μF, 16V, Elect.
C707	392880107	1μF, 50V, LL
C708	352781599	0.15μF, 50V, Elect.
C709	352780109	1μF, 50V, Elect.
C718	352732219	220μF, 16V, Elect.
	Ceramic oscillator	
X701	3010092	CSB800K
	Resistors	
R701-R711	49163392411	3.9kΩx11, 1/10W, Network
R712-R722	49163392411	3.9kΩx11, 1/10W, Network
R723-R728	49121392406	3.9kΩx6, 1/8W, Network
R729-R740	49163392412	3.9kΩx12, 1/10W, Network
R741-R744	49121392404	3.9kΩx4, 1/0W, Network
R759	5215045 or	N08HR10KBC, Semi-fixed
	5215021	
R760	441722704	27Ω, 2W, Metal oxide film
	Plugs	
P403	25055133	NPLG-3P-117
P702	25055140	NPLG-10P-124
P703	25055136	NPLG-6P-120
P704	25055135	NPLG-5P-119
	Socket	
P701a	2000447	NSAS-20P-406
	Lamp	
PL701	210183	PL14V0.06AW-2.0

CIRCUIT NO.	PART NO.	DESCRIPTON
C908	352752229	0.22μF, 50V, Elect.
C909	352742219	220μF, 16V, Elect.
C910	352744709	47μF, 16V, Elect.
C911	3504168	13,000μF, 24V, Elect.
C912	352782299	0.22μF, 50V, Elect.
C913	352781099	0.1μF, 50V, Elect.
C951, C952	352744709	47μF, 16V, Elect.
C953	352741019	100μF, 16V, Elect.
C957, C958	352741009	10μF, 16V, Elect.
	Resistors	
R127, R128	5215046 or 5215023	N08HR50KBC, Semi-fixed
R153, R154	6142042	N60LGL50KA15Z, Input level slide
R341	5215045 or 5215021	N08HR10KBC, Semi-fixed
	Resistors	
R401, R402	5215044 or 5215020	N08HR5KBC, Semi-fixed
R439, R440	5215047 or 5215024	N08HR100KBC, Semi-fixed
R441	441521004	10Ω, 1/2W, Metal oxide film
R901	441520224	2.2Ω, 1/2W, Metal oxide film
R905	441524794	0.47Ω, 1/2W, Metal oxide film
R907	441721804	18Ω, 2W, Metal oxide film
	Relay	
RL101	25065174	NRL-2P1A-DC12-09
	Plugs	
P101	25055037	NPLG-6P-28
P203	25055133	NPLG-3P0117
P401	25055038	NPLG-2P-29
P601	25055142	NPLG-12P-126
	Terminals	
P103	25045120	NPJ-4PDBL49, Input/output
P201	25045134	HLJ4337-01-010, Microphone
P202	25050064	NSCT5P18, DIN (G/W)
	Socket	
P403a	2000396	NSAS-6P-355
	Switch	
S201	25035473	NPS-422-L435, Push

BALANCE VOLUME PC BOARD (NAVR-2290)

CIRCUIT NO.	PART NO.	DESCRIPTON
R151, R152	5148098	N16RGLC250KMN20, Variable resistor

ACCU. BIAS VOLUME PC BOARD (NAVR-2291)

CIRCUIT NO.	PART NO.	DESCRIPTON
R443	5146047	N16RLC5KB20, Variable resistor

COUNTER/REPEAT SWITCH PC BOARD (NASW-2292)

CIRCUIT NO.	PART NO.	DESCRIPTION
S710-S714	25035389	NPS-111-S353, Push switch
P703	2000445	NASA-6P-404, Socket

HEADPHONE TERMINAL PC BOARD (NAHP-2293)

CIRCUIT NO.	PART NO.	DESCRIPTION
P301	25045139	NLJ0540-01-010, Headphone terminal

EDGE LIGTH PC BOARD (NAPL-2294)

CIRCUIT NO.	PART NO.	DESCRIPTION
PL101	210090	PL14V, 150mA, Lamp

TIMER/MEMORY SWITCH PC BOARD (NASW-2295)

CIRCUIT NO.	PART NO.	DESCRIPTION
S720	25030267	NRS-145-20SS, Rotary switch
P704	2000444	NSAS-5P-403, Socket

OPERATION SWITCH PC BOARD (NASW-2297)

CIRCUIT NO.	PART NO.	DESCRIPTION
S701-709	25035389	NPS-111-S353, Push switch

DIAPLAY PC BOARD (NADIS-2298)

CIRCUIT NO.	PART NO.	DESCRIPTION
D201, D202	225178	GL3HY27, LED
D713, D714	225178	GL3HY27, LED
D715-D721	225179	GL3NG28, LED
D710, D712	225177	GL3PR28, LED
D711	225179	GL3NG28, LED
P203a	2000442	NSAS-3P-401, Socket
	27190352	Holder, LED

L.E.D. PC BOARD (NALED-2299)

CIRCUIT NO.	PART NO.	DESCRIPTON
D722	225176	GL3N412, LED

POWER SWITCH PC BOARD (NASW-2300)

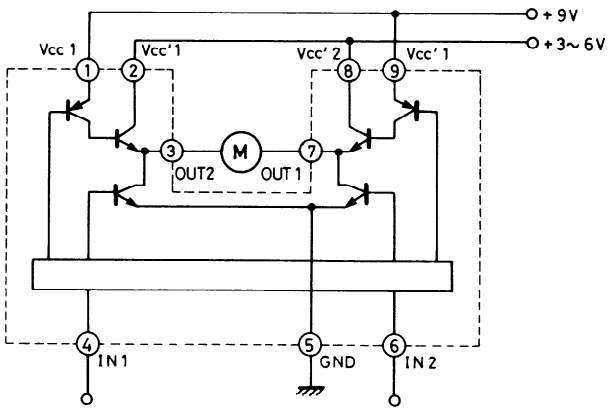
CIRCUIT NO.	PART NO.	DESCRIPTON
C999	3500065A	DE7150FZ103P400VAC,
	Capacitor IS	
S901	25035375	NPS-111-L339P, Power switch
	25060092	NTM-1S33, Terminal

REMOTE CONTROL TERMINAL PC BOARD (NARM-2301)

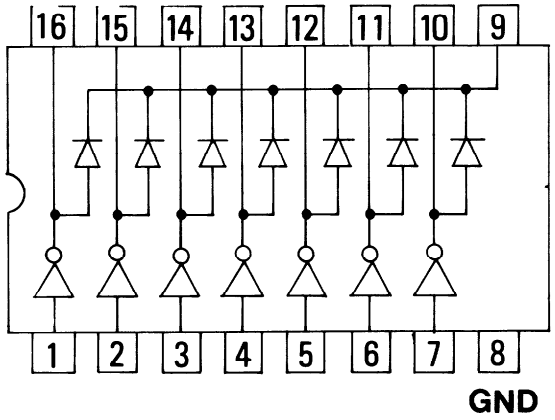
CIRCUIT NO.	PART NO.	DESCRIPTON
P750	25050070	NSCT-7P20, Terminal

IC BLOCK DIAGRAM

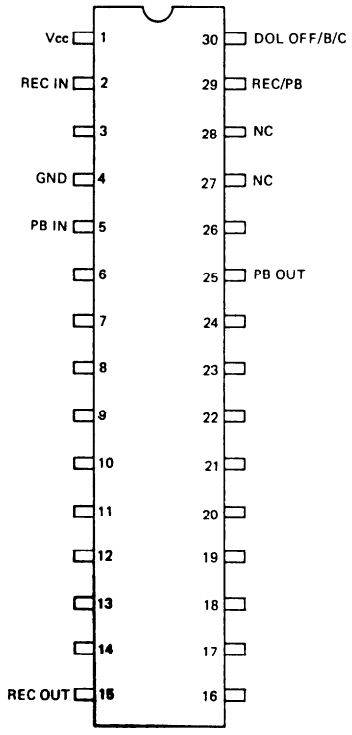
LB-1640N (MOTOR DRIVE)



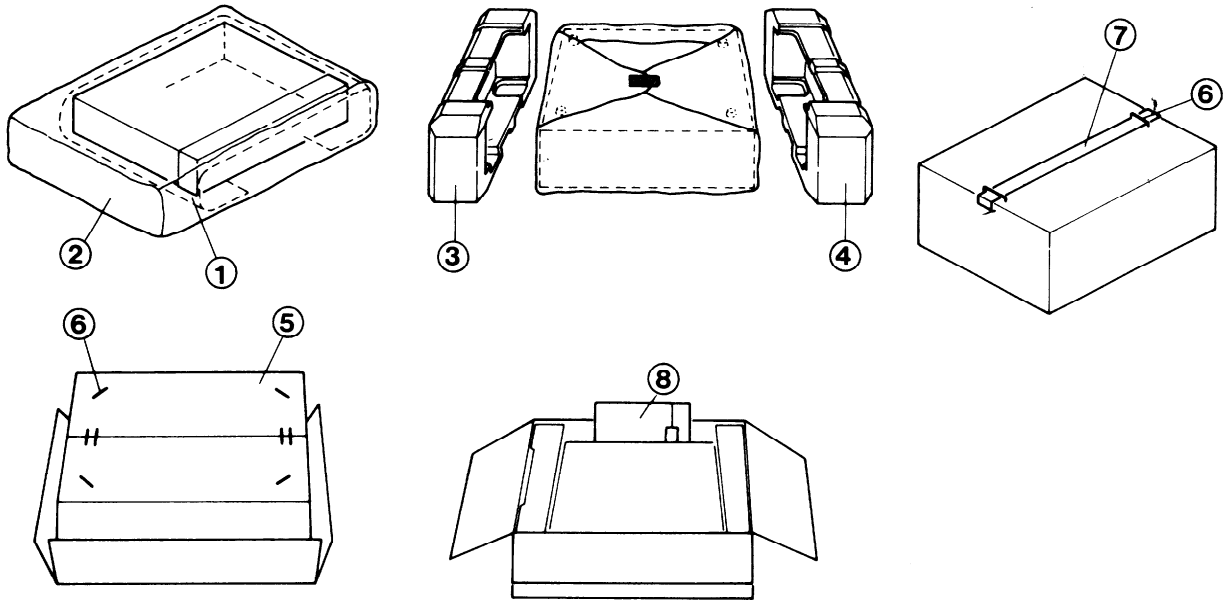
BA-12004 (LED DRIVER)



HA-12058NT (DOLBY-NR)



PACKING VIEW



D model

REF. NO.	PARTS NO.	DESCRIPTION
1	29095012-1	500×800 Protection sheet
2	290311A	620×550 Poly bag
3	29090770A	Pad (L)
4	29090769B	Pad (R)
5	29051067	Master carton box
	29051068	Master carton box (B)
6	282301	Sealing hook
7	260012	Damplon tape
8	Accessary bag ass'y	
	29340848	Instruction manual
	2010095	Connection cable
	29365006-7	Waranty card (N)
	29358002B	Service station list (N)
	29100005	220×330 Poly bag

G/W Model

REF. NO.	PARTS NO.	DESCRIPTION
1	29095012-1	500×800 Protection sheet
2	290311A	500×750 Poly bag
3	29090770A	Pad (L)
4	29090769A	Pad (R)
5	29051067	Master carton box
	29051068	Master carton box (B)
6	282301	Sealing hook
7	260012	Damplon tape
8	Accessary bag ass'y	
	29340849	Instruction manual (G)
	2010095	Connection cable
	25055040	Conversion plug CV-K-2 (W)
	29100005	220×330 Poly bag

NOTE:

(N): Only U.S.A. Model
(W): Only 120/220V Model
(B): Black Model

ONKYO CORPORATION
International Division: No. 24 Mori Bldg., 23-5, 3-chome, Nishi-Sinbashi, Minato-ku, Tokyo, Japan
Telex: 2423551 ONKYO J. Phone: 03-432-6981

ONKYO U.S.A. CORPORATION
200 Williams Drive, Ramsey, N.J. 07446 Tel. 201-825-7950

A504 Printed in Japan